

Hitchcock's Machine Tool Blue Book

JULY, 1933

TWENTY-EIGHTH YEAR

SPEED=
SPOT WELD

THESE LIKE AND UNLIKE

METALS
SAVE

50%

PRODUCTION COSTS

$\frac{1}{2}$ To 75 K. V. A. As Low As \$55.

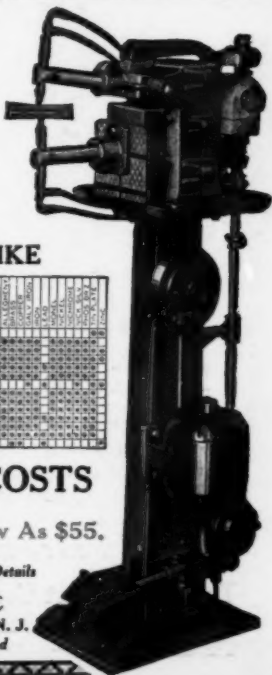
Submit Samples for Production Estimates and Details

EISLER ELECTRIC

763 S. 13th Street

NEWARK, N. J.

Distributor and Dealer Connections Desired



METAL	ALUMINUM	ALLOY	BRASS	COPPER	IRON	STEEL	LEAD	NICKEL	PHOS. BRZ	TIN PLATE	ZINC
ALUMINUM											
ALLOY											
BRASS											
COPPER											
IRON											
STEEL											
LEAD											
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PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

Hitchcock's Machine Tool Blue Book

Selected
Circulation

20,000
Monthly

JULY, 1933

TWENTY-EIGHTH YEAR

First Comes Planning Time Then Buying Time

Industry is gaining momentum.

By Fall, we predict, there will be much busier days in the industrial plants of the country, and they will need new and improved machinery.

But machine tools and other expensive shop equipment are not bought in a minute. Purchases usually follow weeks or months of planning and selection.

NOW are the months of planning and selection for Fall and Winter purchases. NOW is the logical and profitable time to advertise for your part of that trade.

Therefore, why wait? Why not tell your story NOW, while buyers are planning—investigating—selecting?

And for that purpose why not use the pages of the "Blue Book," whose sole purpose is to carry your story to the greatest number of people who would be interested in what you have to offer that would benefit them?

Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

Consult the Classified Finding Index for your requirements

NOC-OUT

Automatic Roll Feeds For Punch Presses Speed Production

Secure automatic feeding with its many advantages for your punch presses by installing the NOC-OUT Automatic Reversible Feed. This small unit automatically feeds metal, paper, brake lining or any other stock from coils in lengths from 0 to 30 inches per stroke of press.

FASTER — ACCURATE — ECONOMICAL

Labor is saved, production is increased and your men safeguarded with this feed. Automatic feeding means full speed production all day long —there are no "let downs" as it eliminates the human element whose energies are limited. Can be readily installed on any press.

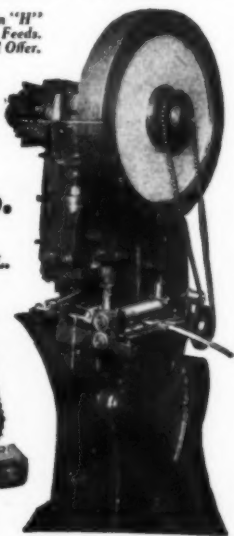
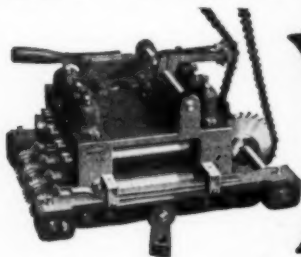
We will gladly send you a copy of Bulletin "H" describing NOC-OUT Automatic Roll Feeds. Write for it and details of Our Free Trial Offer.

We design and build progressive and automatic dies for high speed production. Submit samples of your stamping for estimate.

Wittek Mfg. Co.

4309 W. 24th Place,

Dept. "H" CHICAGO, ILL.



WHEN YOU COME TO THE CENTURY OF PROGRESS EXPOSITION

Get acquainted with the following *Chicago Manufacturers and Dealers*, who are advertisers in this publication. They will be glad to welcome you. They are in position to supply your present and future requirements in Machine Tools and allied shop equipment to your mutual advantage.

MANUFACTURERS

Armstrong Bros. Tool Co.,	308 N. Francisco Ave.
Armstrong-Blum Mfg. Co.,	341 N. Francisco Ave.
E. A. Baumbach Mfg. Co.,	1810 S. Kilbourn Ave.
Chicago Wheel & Mfg. Co.,	116 S. Aberdeen St.
Cullman Wheel Co.,	1359 Altgeld St.
Illinois Testing Laboratories,	150 W. Austin Ave.
N. A. Strand & Co.,	5001 N. Lincoln St.
Witteck Mfg. Co.,	4309 W. 24th Place.

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Geo. M. Bernstein & Co.,	225 N. Elizabeth St.
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Maplewood Machinery Co.,	2634 Fullerton Ave.
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 Accurate Fit, Uniform High Quality,
 Prompt Service



Standard
 Sizes
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MACHINE SCREWS
 MACHINE SCREW NUTS
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Drop us a card to-day.

**ELCO TOOL & SCREW
 CORPORATION**

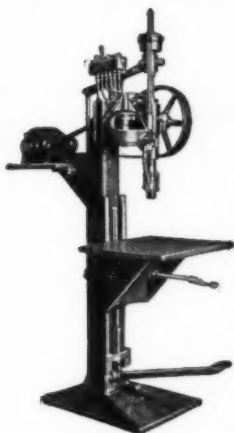
1808 Broadway, Rockford, Ill.

"It Pays to Use Good Screws"



A HEAVY DUTY

Screw Driving Machine



with an
**AUTOMATIC
MAGAZINE
FEED**

This Machine Will Cut YOUR Costs

WITHOUT change or adjustment, the No. 2 magazines and drives any three consecutive sizes of wood or machine screws from Nos. 6 to 14 inclusive. It has many improvements and refinements, chief of which is the Chuck with Equalizing Jaws. Drives screws to center of an 18" circle in work not over 18" high, and gap column can be furnished to drive screws to center of 48" circle in work not over 6" high. Quickly interchangeable sets of parts can be furnished to increase range of screws driven—no change necessary for different length screws.

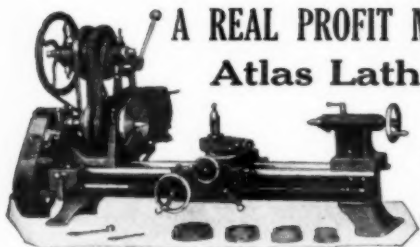
Write for complete information giving length and gauge of screws used, and we'll send facts and figures that will surprise you.

The Reynolds Machine Company

Dept. H. H.

Massillon, Ohio

"THE MODERN WAY TO DRIVE SCREWS"



A REAL PROFIT MAKER Atlas Lathe—

9"
Swing,
Screw
Cutting

As Little As \$6. A Month Puts It In Your Shop

6 Speeds; Patented Vee-Belt drive gives greater power; 4 to 72 threads; Compound Rest; Hollow Spindle; has Self-contained countershaft, requires minimum space; non essential weight eliminated by use of Zamak parts; Motor Drive; 18" between Centers, also larger sizes; \$79. less motor; \$89. equipped with motor. Full line of attach-

ments — Universal Grinder for Valves, Pistons, Mica Undercutting, etc.

Write for details

ATLAS PRESS CO.

Makers of Famous Atlas Arbor Press
1850 N. Pitcher St., Kalamazoo, Mich.

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Capacity 12"x36"

**The Thompson
Grinder Co.**

1534 West Main St.,
SPRINGFIELD, OHIO



KRW Hydraulic and Sensitive ARBOR PRESSES

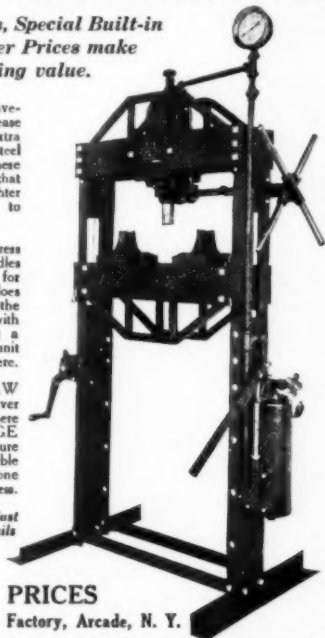
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

F. O. B. Factory, Arcade, N. Y.

- | | |
|-----------------------------------------------------------------------|----------|
| No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated) | \$128.00 |
| No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated) | 128.00 |
| No. 37E—50 ton Hydraulic and Sensitive Arbor Press (hand operated) | 150.00 |
| (Can also be furnished in air-oil operated at same price) | |
| No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only) | 275.00 |
| Gauge and fittings, \$15.00 extra on all presses. | |

K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U. S. A.

EXPORT DEPARTMENT
126 Liberty St., New York

WEST COAST BRANCH
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A New Internal

**Developed by BLESER MOTORS, Ltd.
16th and Madison Sts., Springfield, Ill.**

Are You Interested —

1. *In promoting an engine* which will outperform any internal combustion engine now known to industry, and which can be manufactured and sold cheaper than the conventional type of engine?
2. *In financing* such a project?
3. *In having one or more engines built for special purposes* (races, etc.) where hitherto unheard-of performance is wanted? You get light weight, small size, lack of vibration, extreme high power, smooth power, etc., at no greater cost than with other specially built engines.
4. *In obtaining manufacturing rights and patent license* for commercial production of these engines?
5. *In handling financial or sales end* of such production?
6. *In the development of oil engines and further improvements* in internal combustion engines?
7. *In the production of development of air motors or air compressors, pumps, etc.,* of extremely small size and weight, and with extremely large capacity?
8. *In putting us in touch with parties who would be interested* in any of the above projects?

IF SO, YOU ARE INVITED to write us and arrange for a running demonstration of the new Bleser Motor illustrated herewith.

Bleser Motors, Ltd

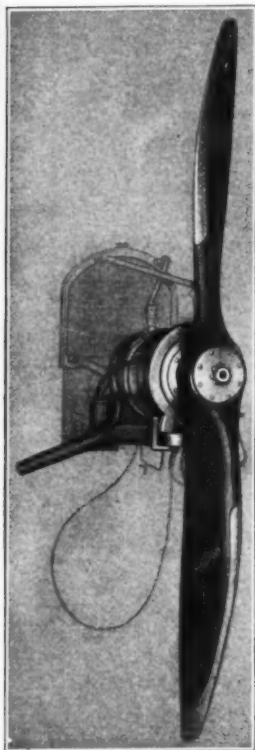
16th and Madison Sts.,

Springfield, Illinois

Combustion Engine

The picture herewith is from an actual photograph of the working model of the

No. 539 Bleser Motor



SPECIFICATIONS:

TYPE, 12 cyl. water cooled, 4 cycle.

HORSEPOWER, ...200 at 1200 r.p.m.

(Pony brake test)

DIAMETER, 19 inches.

FRONTAL AREA, ...2 sq. ft. (approx.)

WEIGHT, 386 lbs.

LENGTH, 41½ in.

DISPLACEMENT, 539 cu. in.

24 explosions in 2 revolutions.

Patented and Patents Pending

This is a cam engine utilizing six double ended pistons, with roller bearing piston rollers working in opposed cylinders, which are arranged in a circle around the main shaft, and are parallel to the main shaft. The cam is so constructed that each piston goes through four cycles (two complete crank motions) during each revolution, and each cylinder therefore fires once per revolution of the main shaft.

NOTE

This photo is of the engine mounted in the test stand just as it is run. The radiator mounted in the top of the stand is of course temporary, and is used to cool the water while it is being run inside the building. The instrument panel containing the throttle, tachometer, temperature gauges, etc., is mounted at the rear of the stand.

Additional information will be furnished on request

Bleser Motors, Ltd.

16th and Madison Sts.,

Springfield, Illinois

ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE



Drop Forged Tools



Write
for
Catalog
B-27

You doubtless use ARMSTRONG TOOL HOLDERS, know the quality of ARMSTRONG WRENCHES. This same high quality carries through all ARMSTRONG Lines, each complete in sizes and types, all improved tools.

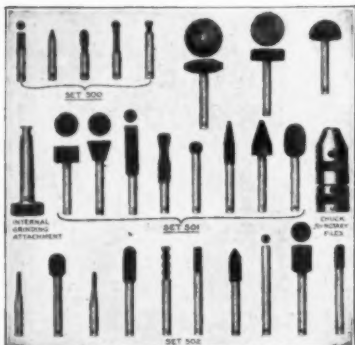
Take ARMSTRONG Lathe Dogs for example—11 types, all sizes, 3 types of screws. Hubs large enough for re-tapping, screws of alloy steel, hardened at the point. It pays to specify "ARMSTRONG" on "C" Clamps, Ratchet Drills, Planer Jacks, Strap Clamps, Drill Drifts and other machine shop specialties.

Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., CHICAGO, U. S. A.

SEE THE
ARMSTRONG
TOWER OF TOOLS



Strand
HIGH SPEED
ROTARY
FILES
HAND CUT



FLEXIBLE SHAFTS AND EQUIPMENT

N. A. STRAND & CO.

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5001-5009 No. Lincoln St.,

Chicago, Ill.

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We are always glad to forward a memo of any machinery or equipment for which you are in the market to all of our advertisers without charge.

The Blank Form

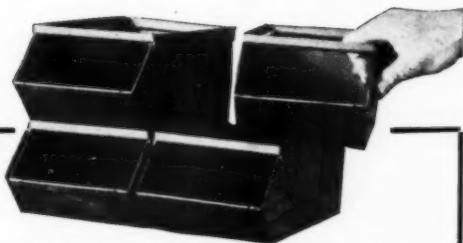
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HITCHCOCK PUBLISHING CO.

508 S. Dearborn St., Chicago



SPEED UP Production

Cut handling costs—eliminate waste motions—save time with Stackbins.

The contents of each individual Stackbin are always accessible without disturbing the bins above or below.

Write for Illustrated Circular

STACKBIN CORPORATION
PROVIDENCE, R. I.

STOP Your Losses

with a Walton Tap Extractor



Remove that broken tap quickly —
without injury to the threads.

About 90% of all taps break before they wear out. Each broken tap means stopped production, and the loss of a mechanic's valuable time. Decrease time spent on extracting broken taps and increase production. You can do it with a Walton Tap Extractor.

Made in three and four-flute styles.

A 60 day free trial will convince you

The Walton Company

302 Pearl St.,

Hartford, Conn.

STANDARDIZATION PAYS



UP TO
**ONE HUNDRED
HORSEPOWER**
FROM STOCK!

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BOSTON SPRINGFIELD (Mass.) NEW YORK PHILADELPHIA CLEVELAND CHICAGO

BOSTON GEARS

When You Move

Please drop us a line, giving both your *old* and *new* address. Or if the name of your company has been changed, please tell us the *old* name and the *new* one. That will enable us to keep our mailing list up to date, and will insure your receipt of this publication monthly.

If you wish this book addressed to any particular individual in your plant, we shall be glad to comply with your request. There is no charge. Thank you.

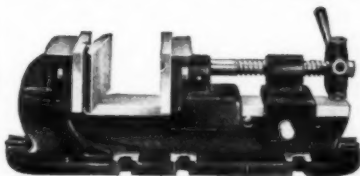
Hitchcock Publishing Co.

508 So. Dearborn St.,

Chicago, Ill.

Gem Drill Press Vise

Discard Obsolete Equipment!



Made
In
3-sizes
Up To
10½"

Equip Your Plant with GEM VISES

J. E. Martin Tool & Die Works

528 W. State St.,

SPRINGFIELD, OHIO

WRITE FOR NEW PRICES

Abolish Expensive Hand Finishing

with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

WALLS SALES CORP., 96 Warren Street
NEW YORK

Outdoor Note

Ants, we read, can lift weights which are tremendous as compared with their own. Wasps and bees also can raise good-sized lumps.

Not Hard to Do

Jones—How do you spend your income?

Smith—About 30 per cent for shelter, 30 per cent for clothing, 40 per cent for food and 20 per cent for amusement.

Jones—But that adds up to 120 per cent.

Smith—That's right.

We Second the Motion

I wish our bank could get on its feet enough to stop sending back our checks marked 'No funds', said the bride to her husband. A bank that hasn't got enough money on hand to pay a \$4.27 check ought to be merged and put on a sound basis.

Wouldn't Feel Natural

Say, Bill, if you had five bucks in your pocket, what would you think?

I'd think I had on somebody else's pants.

Go Easy!

Pat: Hullo there! I want to know where I can get hold o' Mrs. O'Sullivan.

Operator: I don't know. She's awfully ticklish.

Twelve Things to Remember

The Value of Time.
The Success of Perseverance.
The Pleasure of Working.
The Dignity of Simplicity.
The Worth of Character.
The Power of Kindness.
The Influence of Example.
The Obligation of Duty.
The Wisdom of Economy.
The Virtue of Patience.
The Improvement of Talent.
The Joy of Originating.

Actual Riveting Results

Are Most Convincing

Send us samples of your most difficult work, in close corners or out-of-the-way places, let us rivet them on the—

GRANT NOISELESS SPINNING RIVETER

—and we will return them, with time and cost estimate.

The GRANT produces highly polished heads, without hammer or tool marks. Speed: a rivet a second. May be operated by unskilled labor—and it's *noiseless*.

Write for Catalog—and don't forget to send that sample!

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machinest scales, micrometers and fine tools or can be used for *extra heavy and deep* marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

Send for circular giving complete data and details of this modern instrument.



Built rugged for continuous work on the production line.

LUMA ELECTRIC EQUIPMENT CO.

DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO



Punch MORE Holes with T. H. L. PUNCHES

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—*right*. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

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311 East 47th St., (Est. 1890) New York City

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PULLEY GRINDERS

Finish Belt Surface, Crowned or Straight, from the Rough. Also Truck Treads and Curved Work.

GRINDER CHUCKS hold Abrasive Rings, 10" to 30" dia.

for roughing and finishing

FLAT WORK

Ring Wheels 12" and 18"

Table travels 16" and 24"

For Production to Tool Room

Send
for
Circulars



Work Bound
to be True

Flat Work
Grinder

THE GRAHAM MFG. CO., 70 Willard Ave.
PROVIDENCE, R. I.

To Industrial Plants

For the mutual benefit of yourselves and our advertisers, we want to be sure that the Blue Book goes, without cost, to those in your plant who can use it to good advantage.

Quite a number of you, particularly among automobile manufacturers, have sent us lists of the prominent men in your organizations who are most closely identified with the planning of your improvements and the selection or purchase of your machinery.

If you have not done this, you are earnestly requested to send us such a list of names, so that we may mail the Blue Book regularly every month to those of your own selection, without cost or obligation of any kind whatsoever. Simply tear out this page, write the names on the reverse side, and mail it to the publisher.

Our only object is to make the Blue Book the best buying and selling medium on earth between manufacturers of machine tools and shop equipment and plants such as yours.

(See next page)

HITCHCOCK PUBLISHING CO.
508 S. Dearborn St., Chicago, Ill.

Please send your Machine Tool Blue Book, without cost, to the following members of our organization, who have to do with planning the equipment of our machine shops and the selection or purchase of our machine tools and other shop requirements:

(Give both names and titles)

[illegible]

It is understood that you are to use the above names as a mailing list for your Machine Tool Blue Book only, and that they will not be used for any other purpose.

Name _____

Street No. _____

City _____ State _____

"Champion" Emery Wheel Dresser

Outlasts a Dozen Cheaper Dressers

The "Champion" is made by experts, for long life and the best service. The only dresser that runs in an oil bearing.

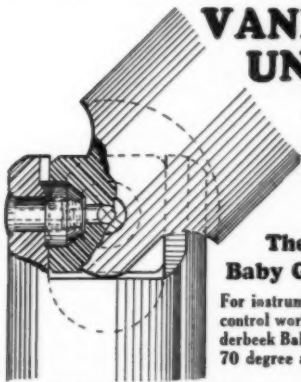


The most economical dresser you can buy. Cutters are made of the best grade of tool steel, milled and heat-treated and tempered—fully guaranteed. Get the complete details on this cost saving tool.

Write for Catalog also describing Champion Tool Holders, Expanding Mandrels, Vises, Clamps, Shop Furniture, Etc.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

VANDERBEEK UNIVERSAL JOINTS



The GIANT with hardened and ground working surfaces for heavy duty.

The Baby Giant

For instrument and control work. The Vanderbeek Ball Joint runs to 70 degree angle.

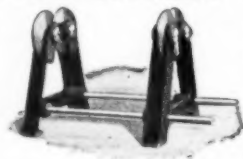


Write for prices and state your requirements
AMERICAN TOOL WORKS, Inc.
25 High Street, Hartford, Conn., U. S. A.

Anderson Ever Ready Balancing Ways

Exceedingly Sensitive

Easy to Manipulate



Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards...	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code.....	Bea	Bed	Bis	Bib	Ben	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

This Publication

Over 27 years ago this publication began advertising the products of reliable manufacturers to the metal-working trade. It is mailed regularly each month to every worthwhile prospective buyer of machinery, equipment, supplies and services in the industry. In the 27 years it has been published, millions of dollars worth of merchandise has been purchased by its readers.

Those who receive this publication regularly read it and respond to its advertising messages. Thousands of plants use it as a buying guide. We believe we sell more products per dollar of advertising than you can obtain in any other way. It is precisely the one medium that can produce profitable results for its advertisers at a reasonable cost.

Rates, circulation and other data on request

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Chicago, Ill.

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DIE SETS

BAUMBACH

AT LOWER
COST

24
DIFFERENT
STYLES



OVER
95,000
SIZES

Semi-Steel

DIE SETS

Drop Forged Steel

Send For Our New 208 Page Catalog

E. A. BAUMBACH MFG. CO.
1810 South Kilbourn Ave., CHICAGO, ILLINOIS

“ALNOR” Pyrometers

**for the
Hardening
Furnace**

MODEL 223

Inexpensive, yet accurate and durable, the ALNOR Pyrometer is used by large and small shops everywhere for heat-treating work. Because of its low first cost and compact size it is also very popular for soft metal melting, galvanizing, die casting, japanning, enameling, measuring flue gas temperatures and many other purposes.



Case diam.
4½ in.

Scale length
3½ in.

\$35

With 10 ft. Alloy Wire,
connector block and a
No. 8 gauge insulated
thermo couple 24" long
without protection tube

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Illinois Testing Laboratories, Inc.
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SPEED

SPOT WELDERS

$\frac{1}{2}$ to 50 K. V. A.

Made foot-operated
and variable speed
**AUTOMATIC MOTOR
DRIVE**, no change
gears, for welding
from .0005 to $\frac{5}{8}$ "
combined thickness.

Welders for Fine
Work Priced As
Low As

\$55.00

Submit Your Problems



MANUAL



AUTOMATIC

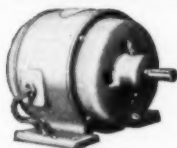
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763 So. 13th Street,

NEWARK, N. J.

Distributor and Dealer Connections Desired

Simple—Rugged—Dependable



The New 1933 Emerald Motors

Here is a new *Low Priced Motor* that is
designed to meet the requirements of modern
industry. The Motors are made of the
best material to stand the severest test.

SINGLE PHASE TYPE MOTORS:— $\frac{1}{2}$, $\frac{3}{4}$ and 1 h. p.,
110/220 volt, 60 cycle, 1750 r. p. m., repulsion induction.

Also Three Phase Motors in $\frac{1}{2}$ h. p. to $1\frac{1}{2}$ h. p. sizes.

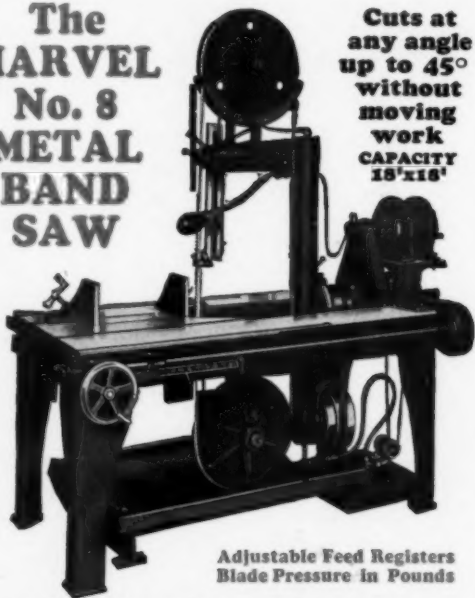
Send For Complete Details and Attractive Prices.

EMERALD ELECTRIC CO., Adrian, Mich.

- - 5 YEAR GUARANTEE ! - -

The MARVEL No. 8 METAL BAND SAW

**Cuts at
any angle
up to 45°
without
moving
work
CAPACITY
18'x18'**



**Adjustable Feed Registers
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FULLY UNIVERSAL, simple to operate, always ready for any job from the smallest to the largest—The Marvel No. 8 Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle, right or left, to 45 degrees, has a large, roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers. Handles a great variety of work and is unequalled in range, accuracy, speed and economy.

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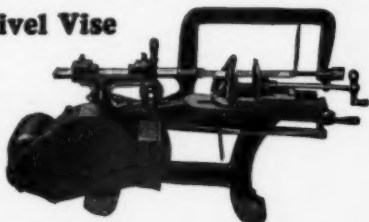
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The MARVEL No. 2 DRAW-CUT HACK SAW

with Swivel Vise

**BUILT
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LONG
LIFE**



ADJUSTABLE STROKE

CAPACITY { 6"x6" on long stroke
8"x8" on short stroke

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High-Speed-Edge Hack Saw Blades

MANUFACTURING CO.
CHICAGO, ILLINOIS

CO-OPERATION

By Col. Benj. A. Franklin, Springfield, Mass.

Industrial Engineer—Business Counsel

Former President, Associated Industries of Massachusetts

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Government, football, family life, business operation, club life, orchestras, and a long line of GROUP OPERATIONS show its tremendous value.

When co-operation doesn't exist in these groups they go to pieces.

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Yet this depression has shown, in prices particularly, cut-throat competition.

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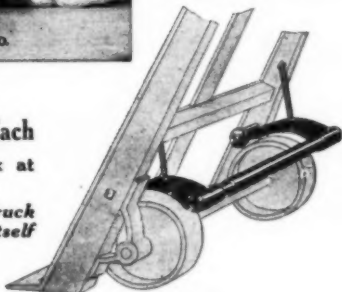
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Brake, 8' D. & K. 10 ga. box & pan.
Brake, 10' Chicago, 10 ga. Leaf Type.
Brake, 10' Dreis & K. 4", m. d.
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Drill, radial, 6" Dreses, s. p. d.
Drill, upright 10" to 36".
Flanger, McCabe, 1 1/2" capacity, dies.
Gear cutters, 11", 24" & 36" Gleason.
Gear cutter, spur, 36" x10" Newark.
Gear hobber, No. 4 Sch. & Sch. 118".
Grinding mche., Medart Auto. Roll.
Grinder, centerless, No. 2 Cincinnati.
Grinder, centerless, No. 4-C Detroit.
Grinder, interal, No. 70 Heald.
Grinder, rad., 14" M. & D., m. d.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, surface, No. 2 Reid, b. d.
Grinder, tool & cut., No. 2 Walker.
Generators, eng., oil, gas, belt & mtr.
Hammer, Blacker, power, 35-lbs.
Hammer, 80-lb. Bradley, cush. helve.
Hammer, 250-lb. Little Giant, b. d.
Hammers, Nos. 2-B, 3-B, 6-N, Nazel.
Hammers, steam, 600 lb. to 6000 lbs.
Header, No. 2 Wat. Far., o. d., tr. st.
Jacks, 35-ton Barrett, ball bearing.
Keyseater, No. 0 & 3 Baker.
Lathe, 14"x6" Hendey, q. c. g., m. d.
Lathe, 16"x6" LeBlond, q. c. g., d. b. g.
Lathe, 16"x6" Monarch, g. h., q. c. g., m. d.
Lathe, 14"x12" Lodge & S., g. h., m. d.
Lathe, 24"x16" Bridgeford, g. h. m. d.
Lathe, 20"x12" LeBlond, q. c. g., ta. b. d.
Lathe, 26"x20" Bridgeford, g. h., m. d.
Lathe, 48"x26" Bridgeford, g. h. m. d.
Lathe, turret, No. 6 Warner & S.
Lathe, turret, 18" Libby, m. d.
Lathe, turret, 24" Steinle, 6 1/2" hole.
Lathe, tur., 26" Gisholt, 9" hole, m. d.
Lathe, turret, 34" Gisholt, b. d.
Lysholm tables, 72"x30".
Miller, duplex, 24" Cincinnati, auto.
Miller, plain, No. 2-A Milwaukee.

Miller, universal, No. 3 LeBlond.
Nut tapper, 1/2" Acme, 4-spindle.
Motors, a. c. & d. c.
Pipe machine, 2" Landis.
Pipe mchs., 8" Oster, 8" Williams.
Planer, 30"x30"x10' Woodward & P.
Planer, 48"x48"x18" Cinti. belt drive.
Planer, o. s., 36"x36"x16" D. & H.
Planer, o. s., 48"x48"x16" D. & H. m. d.
Planer, rotary, 48" Niles, m. d.
Press, auto., McDonald, No. 31-EG.
Presses, o. b. i. Bliss, Nos. 18, 19, 20.
Press, o. b. i., No. 5 Rockford, 8500 lb.
Press, hydraulic, 1,000 ton United.
Press, hyd., 400-ton Robertson, m. d.
Press, hyd. 100-ton Watson-Stilman.
Press, No. 78 1/2 Bliss, t. r., 10" str.
Press, No. 92 B Toledo, d. c. 2 1/2" str.
Press, No. 96-A Toledo, d. c. 5" str.
Press, screw, No. 87 Niagara.
Press, wheel, 200-ton Lourie.
Punch, hand, Shatz, bar and angle.
Punch & s., No. 6 L. & A. 1/2" thru 4".
Punch, EF Cleveland, 36" thrt., 1"-1"
Punch, multiple, No. 5 H. & J. 10".
Riveters, air, hammer, spinning.
Rolls, bend, 8" x 1 1/2" Bertsch, d. e. b. d.
Rolls, bending, 12" x 1 1/2" H. & J. d. e.
Roller, thread, Nos. 30, 40, 50, 60 W.-F.
Saw, band, No. 8 Marvel.
Saw, cold, 48" Newton, m. d.
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hack, No. 5 Marvel, 6" x6".
Saw, hack, No. 4 Robertson, 8" x8".
Screw Mchs. Nos. 52, 53, 55 Nat. A.
Shapers, 16", 20", 24" & 36" G. & E.
Shaper, 48" Morton draw cut, m. d.
Shear, angle, 6" x6" x1" H. & J.
Shears, alligator, 1 1/2", 2", 3" & 4".
Shear, bevel, Leunox 4", b. d.
Shear, No. 1 Gray, 3/16", 34" gap.
Shear, splitter, gang 36", Yoder, m. d.
Shear, guil. No. 5 H. & J. 4" sq., m. d.
Shear, rotary, 1/2" Ryerson.
Shear, 36"x16 ga. Pexto, foot.
Shear, squ., 60"x3/16" McSherry b. d.
Shear, squaring 8"x14 ga. Ohl.
Shear, squaring 10"x10 ga. Ohl, b. d.
Shear, squar. 12" Niagara, 10 ga., m. d.
Shear, 54" x 1 1/2" Garrison, 24" gap.
Shear, 12" x 1 1/2" Wheeling, 31" gap.
Slotter, 18" Dill, motor drive.
Straight'r, No. 3 Medart, cap. 1"-4 1/2".
Straight'r, 48" United, 16 ga. 13 rolls.
Straightner, 1 1/2" round Abramson.
Straightner, 4" round Abramson.
Swaging mche., No. 5-A Standard.
Testing mche., Brinnell hardness.
Testing mches., 100,000-lb. Olsen.
Tumbling barrel, 18"x36", b. d.
Upsetters, 1" to 6".
Welders, spot and butt.
Woodworking Machinery.

USED AND REBUILT MACHINERY

FOR SALE BY

Geo. M. Bernstein & Co., - 225 No. Elizabeth St., Chicago, Ill.

Bolt cutter, 24" Nat. 37 sts. ds. \$245.	Miller, No. 3 Kemp. plain.....\$285.
Drill, 3" Avey h s. b. b., fl. type 79.	Pipe machine, 2" B. & K., s. p. d. 150.
Drill, 3" L. & G. h. s. b. b., fl. type 48.	Planer, 30"x24"x6" Rockford.....145.
Drill, 20" Superior, fl. type.....27.	Riveter, 4-A high speed.....135.
Gear hobber, No. 3 Barber C... 250.	Saw, No. 1 Klemm metal band. 125.
Lathe, 14"x6" Seneca Falls.....115.	Screw press, 20 ton Stecher.....115.
Lathe, 18"x8" South Bend gap... 165.	Shaper, 13" Smith & Mills.....95.
Miller, No. 1 Kemp. univ., v h. 450.	Tapper, No. 1 Garvin.....60.

New 3, 4 & 5" machinist vises, swivel and plain, at 50 per cent saving.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street,

St. Louis, Mo.

Bar shear, 5"x14".	Lathe, 36"x15" American, q. c. g.
Boring mill, 36" Gisholt.	Miller, No. 5-B Brown & Sharpe.
Drill, 22" Barnes, back geared.	Miller, No. 3 Brown & Sharpe.
Drill, 24" Prentice, sliding head.	Pipe machine, 4" Oster.
Drill, 25" Barnes back geared.	Pipe machine, 8" Williams.
Drill, 28" Barnes sliding head.	Planer, 24"x24"x6" iron.
Drill, 1-spindle Avey.	Press, No. 57 Swaine straight back.
Drill, 3-spindle Avey.	Press, No. 14 Bliss toggle.
Grinder, Wells Bros. universal.	Press, No. 37 Niagara str. back.
Grinder, 12"x60" Landis universal.	Press, No. 24 Toledo cam drawing.
Hammer, 60 lb Bradley helve.	Press, No. 723 Toledo cam drawing.
Hammer, 600 lb. steam.	Punch, No. 14 W. W., 12" throat.
Lathe, 16"x9" Lehman.	Punch, double end, two 20" throats,
Lathe, 24"x12" Lodge & Shipley.	capacity 1" in 1".
Lathe, 24"x12" Schumacher & Boye.	Sand sling, Beardsley & Piper.
Lathe, 48"x12" Lodge & Shipley.	Shaper, 16" Ohio.
Lathe, 30"x15" Lodge & S., q. c. g.	Shaper, 24" American, b. g. crank.
Lathe, 24"x22" Lodge & Shipley, q.	Tapper, auto., Rickert & Schafer.
c. g., 64" hole in spindle.	

FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Automatic screw machines, B. & S., No. 00, 0 and 2.....	\$100. to \$450.
Automatic screw machine, B. & S. No. OG, m. d. with 2 h. p. a. c. mtr.	500.
Automatic screw machine, Gridley 4 spindle "F" 1 1/2" & 1 1/4".....	300. to 400.
Automatic screw machine, 3 1/2" Cleveland Model A, No. 27182.....	300.
Brake, 10' Ohl 10 gauge, motor drive with motor, late type.....	850.
Drill, 24" Sibley sliding head, b. g. and p. f.....	125.
Drill, 2-spindle H. W., h. a., b. b. heavy duty, class B.....	150.
Drill, 4 spdl. L. & G. high speed b. b., arr. for motor, pump and tank	300.
Gear cutter, B. & S. No. 3, 26" for spur gears.....	200.
Grinder, Capitol internal, capacity 3/16" to 2"x2".....	75.
Lathe, 13"x5" Carrol-J. semi quick change with 2 chucks.....	125.
Lathe, 20"x8" Monarch, d. b. g., q. c. chucks.....	250.
Lathe, 24"x12" American, q. c., s. b. g., 18", 4 jaw chuck.....	350.
Lathe, 30"x13" H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	800.
Miller, No. 1Y B. & S., not b. g. but p. f., with vert. attach. and c/s..	275.
Miller, No. 2H B. & S. plain, cone type, with vise, c/s and arbois.....	400.
Miller, No. 1 Garvin universal, fully equipped.....	250.
Miller, Cleveland universal, No. 1 g. h., fully equipped.....	450.
Miller, No. 2 MU. Garvin universal, fully equipped.....	350.
Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump.....	150.
Miller, Briggs, G. & E. manufacturing, 16".....	75.
Miller, No. 5 Becker vertical, no rotary.....	300.
Miller, No. 7 Becker, Lincoln type.....	75.

USED AND REBUILT MACHINERY

FOR SALE BY

The Elyria Belting & Machinery Co.,

Corner Williams and Buckeye Streets,

Elyria, Ohio

Bulldozers, Nos. 3 & 5 Williams & White.
 Drill press, Avery 4-spindle.
 Press, No. 55 Toledo straight side, 16" stroke.
 Presses, No. 3-A Toledo inclinable, 3" stroke.
 Presses, Nos. 55, 56, 56½, 57 Consolidated Forging, geared, str. side, with side shear, 4" stroke.
 Press, Rockford No. 8, double crank, 8" stroke.
 Scrap metal baler, Logemann, bdl. 12x12x18.

FOR SALE BY

Marr-Gallbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Air compressor, 10x10" Chgo., n.s.b.
 Air comp., (garage), 3 to 7 cfm. m.d.
 Air receivers, 4'x18", 150 lb., (14).
 Angle roll, No. 3 Niagara, 1½x3/16".
 Beading machine, No. 100 Niagara.
 Bolt cutter, ½" Geometric, m. d.
 Boring mill, 30" King; and Bullard.
 Brake, 52" x 18 ga., P S. & W., hand.
 Brake 10" Keene toggle, 16 gauge.
 Brakes, hd, 10", for 18 ga. Robinson.
 Broaching mch. Nos. 1 & 3 LaPointe
 Crimping roll, 6½" Robinson, 16 ga.
 Drills, 20" b. g., p. f.
 Drill, 24" Rockford, g. f. taper att.
 Drill, 25" Snyder, s. h., b. g.
 Drill, 26" Prentice, b. g., s. h., m. d.
 Drill, radial, 3" Dreses.
 Forging mchs., 1½", 3" & 3½" (steel).
 Grinder, No. 1½ Landis universal.
 Grinder, universal t. & c. Nos. 2 & 3.
 Grinder, sur., No. 2 B & S., mag. ck.
 Hack saw, 8x8" Racine, belt.
 Hammer, 40 lb. Bradley, H. H.
 Hammer, 100 lb. Bradley, U. S.
 Hammer, 800 lb. Erie str. forg., s.f.
 Hammer, 1000 lb. Chbg., steam drop.
 Hoists, chain, 1 to 8-tons capacity.
 Jointer, 8" F. & E., rd. hd.
 Keyseater, No. 2 Mitts & Merrill.
 Keyseater, 24"x24" Morton.
 Lathes, Hendey, g. h. 12"x6": 16"x6".
 Lathe, 16"x8" Champion (new).
 Lathe, 18"x6" National q. c. g.
 Lathe, 19"x10" LeBlond, q. c. g., t.a.
 Lathe, 20"x12" Monarch, q. c. g.; t.a.
 Lathe, 22"x10" 10" Greaves-K., q. c. g.
 Lathe, 22"x13" Lehman, g. h., q. c. g., t.a.
 Lathe, 24"x12" Pgh., q. c. g. chuck.
 Lathe, 27"x16" Pgh., t. a., chuck.
 Lathe, 30x15" Lehman, gd. hd.
 Lathe, 32"x16" Pgh., q. c. g. chuck.
 Lathe, 40"x26" geared head, m. d.
 Miller, Hand, Whitney, m. d.
 Millers, hand, Burke & Rockford.
 Millers, plain, No. 3 LeBlond.
 Miller, No. 28 Ohio: No. 3 Cin'ti.
 Miller, 2-GS. Hendey, g. b., s. p. d.
 Millers, vert., Becker, 3, 4B, 5B.

Miller, No. 14 Garvin plain, (2).
 Miller, No. 2-AU Garvin universal.
 Miller, universal No. 4 B. & S.
 Miller, auto. No. 2-M P. & J., s. p. d.
 Motors, 1, 2 & 3 ph., also d. c.
 Pipe machine, Williams, 3", s. p. d.
 Planer, 30"x18" W. & P., 2-heads.
 Press, 42-h.p. Toledo, horn, plain.
 Press, No. 6 Toledo, o. b. i., pl. m. d.
 Press, No. 14 Tol. horn, 3½" & 4" st.
 Press, 57½" Tol. s. s. t. r., 12" st.
 Press, No. 7 Bliss, d. c. t. r., 8" str.
 Presses, Bliss o. b. i., 18, 19, 20.
 Presses, 250-ton B. & B. tire, vert.
 Presses, foot, No. 87 Bliss, pendulum.
 Presses, Nos. 3 & 4 Bliss, punch type
 Press, reducing, No. 61 Bliss, 4" str.
 Punch, s. e., Badger, 7" thrt., ¾"x½".
 Punch & shear, d. e., S-A., Beloit.
 Punch & shear, d. e. 16" thrt.; 1½"x1" with angle & barshear blades, m.d.
 Punch & stake riveter, No. 123-C. Toledo boilermakers.
 Riveters, 2-A, 3-A, 5½" B, high speed.
 Roll, angle, No. ½ Buffalo.
 Rolls, bending, 11"x½", d. e., m. d.
 Rolls, bend'g, 10"x5/16" Bertsch, d. e.
 Rolls, bend'g, 5"x5/16" Bertsch, d. e.
 Screw machine, No. 0G B. & S.
 Shaper, 15" Hendey, pillar, m. d.
 Shaper, 16" Columbia g. b., s. p. d. 95%.
 Shapers, G. & E., 16", 20", 24" & 32".
 Shaper, 20" Cin. G. B., a. c. motor.
 Shaper, 20" S. & M., g. b., s. p. d.
 Shaper, 24" P. & J. down feed & in. d.
 Shaper, 25" S. & M., b. g., crk., A-1.
 Shear, Unishear, 14 ga. ½ h. p. mtr.
 Shear, rotary, 12" thrt., cap. 10 ga.
 Shear, rotary, No. 208 Niagara, circle attachment, No. 8 ga.
 Shear, thrtless Lennox, ½", ¾", 1", 1½", 2", 2½", 3", 3½", 4", 4½", 5", 5½", 6", 6½", 7", 7½", 8", 8½", 9", 9½", 10", 10½", 11", 11½", 12", 12½", 13", 13½", 14", 14½", 15", 15½", 16", 16½", 17", 17½", 18", 18½", 19", 19½", 20", 20½", 21", 21½", 22", 22½", 23", 23½", 24", 24½", 25", 25½", 26", 26½", 27", 27½", 28", 28½", 29", 29½", 30", 30½", 31", 31½", 32", 32½", 33", 33½", 34", 34½", 35", 35½", 36", 36½", 37", 37½", 38", 38½", 39", 39½", 40", 40½", 41", 41½", 42", 42½", 43", 43½", 44", 44½", 45", 45½", 46", 46½", 47", 47½", 48", 48½", 49", 49½", 50", 50½", 51", 51½", 52", 52½", 53", 53½", 54", 54½", 55", 55½", 56", 56½", 57", 57½", 58", 58½", 59", 59½", 60", 60½", 61", 61½", 62", 62½", 63", 63½", 64", 64½", 65", 65½", 66", 66½", 67", 67½", 68", 68½", 69", 69½", 70", 70½", 71", 71½", 72", 72½", 73", 73½", 74", 74½", 75", 75½", 76", 76½", 77", 77½", 78", 78½", 79", 79½", 80", 80½", 81", 81½", 82", 82½", 83", 83½", 84", 84½", 85", 85½", 86", 86½", 87", 87½", 88", 88½", 89", 89½", 90", 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Sun Machine Co., - - - **35 Van Buren St., Newark, N. J.**

GRINDER.

24"x144" Landis Roll Grinder. Late type. Costant speed motor drive or single pulley drive.

PLANER.

120"x96"x20' Cincinnati, 4 heads. Reversing motor drive. Box table. Forced feed lubrication. Late type.

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Victor Machinery Co., - - - **128 S. Clinton St., Chicago, Ill.**

Phone ANDover 4299

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Drill, 21" Superior, slid. hd., b. g.
Drills, 20" Barnes camel bk., m. d. (2).
Hammers, high spd., Nos. 3A, 4A.
Lathe, 14x6 American, q. c. g.
Lathe, 11x4 New Monarch, s. q. c.
Lathes, 16x8 Pratt & Whitney.

Miller, No. 1 Kempsmith. Univ.
Punch press, Nos. 1 & 2 Am. Can.
Punch press, No. 39 Swaine comb.g.
Punch press, No. 3 Loshbough-J.
Shaper, 20" Ohio, b. g.
Shaper, 20" Gould & E., b. g.
Spinners, Grant, Nos. 103, 120, 80, 107.

FOR SALE BY

The O'Brien Machinery Co., **113 N. Third St., Philadelphia, Pa.**

Automatics, Nos. 00, 00G Brown & Sharpe, 9000 serial.
Bending brake, 6' Cincinnati, cap. 1/2".
Bending rolls, 10' Bertsch, 1/2" cap.
Boring mill, 72" Gisholt vert., 2 hds.
Boring mill, 54" Colburn vert., 2 hds.
Column facer, 14" Espen-Lucas.
Crane, electric travel, 15 ton a. c. mtrs.
Drills, all sizes, upr., sensi. & radial.

Hammer, 800 lb. Erie, steam forging.
Lathe, 24"x14" Greaves-K., belt.
Lathe, 20"x10" Flather, belt, new.
Miller, No. 3 B. & S., pl., s. p. dr.
Pipe machines, 2, 4, 6, 8 and 12" belt and motor drive.
Punch, No. 3 Southwark 1/2" mtr.
Shear, Niagara 6', cap. 1/2", 18" gap.
Turret, No. 4 Warner & S. univ.

FOR SALE BY

Miles Machinery Co., - - -

Saginaw, W. S., Mich.

Arbor press, No. 5 Greenerd, \$100.
Lathe, 14x6 LeBlond.
Lathe, 16x6 Lodge & Shipley.
Lathe, 20x8 Lodge & Shipley.
Lathe, 32x14 Schumacher & Boye.
Lathe, 60x20 New Haven.
Miller, No. 1 1/2" Brown & Sharpe.
Miller, No. 2 Brown & Sharpe.
Miller, No. 3 Brown & Sharpe.
Oil operator, National.

Pipe machine, 4" Merrell.
Press, No. 67 Consol., tierod, s. s.
Press, No. 6 Adriance, o. b. i.
Shaper, 16" Ohio crank.
Shaper, 20" Gould & Eberhardt.
Shaper, 24" Gould & Eberhardt.
Turret lathe, No. 3 A Warner & S.
Turret lathe, No. 2 A Warner & S.
Turret lathe, No. 4 Warner & S.
Turret lathe, No. 6 Warner & S.

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Midwest Equipment Co., - - -

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Air compressors, 8x8, 6x6 l. R. compl.
Arc welder, G. E., 200 amp cap. m. d.
Disc grinder, No. 2 Garduer 18", m. d.
Drill No. 2 Avey, 4 sp., 99% new.
Gear hobber, No. 3 B.-C., arbor, grs.
Grinder, No. 6 18" Besly Ring.
Lathe, 16"x6" L. & S., g. h., m. d.
Lathe, 19"x8" Sidney, q. ch., d. b. g.
Miller, No. 2 Cincinnati Univ., comp.
Planers, Lathes, Screw Machines, Air

Compressors, Woodworking Machines.
Miller, No. 2 Hendey Universal.
Press, 30 ton Lucas straightening.
Press, No. 3 Walsh, o. b. i.
Press, No. 78-C Niagara dbl. crank.
Punch press, No. 4 Rock. b. g., 3" st.
Punch & shear, No. 53 Beloit.
Radial drill, 30" Fosdick, s. p. d.
Shaper, 7" Rhodes, comp. with vise.
Spot welder, 12 K. V. A., A. E. F.

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FOR SALE BY

Temps Bros. Motor Co., - - 802 Myrtle Ave., Brooklyn, N. Y.

ELECTRIC MOTORS.

Factory rebuilt, equal to new. One year guarantee. A. C. or D. C. Single phase, 2 or 3 phase. $\frac{1}{2}$ h. p. \$12.50; 1 h. p. \$16.00; 2 h. p. \$20.00; 3 h. p. \$27.50; 5 h. p. \$32.50. Others to 50 h. p. Also electric grinders. Special slow-speed or high-speed motors built to order. Generator sets. Your old motor re-wound to suit any special requirements. Tell us your motor problems.

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Reliance Machinery Sales Company

1405 Brighton Road, N. S. - - - - - Pittsburgh, Pa.

Air compressor, 8x9" Worthington. Air compressor, 1482 cu. ft. Ing-Kand Boring mill, 38" Gisholt, s. p. d. Drill, No. 4 Colburn 4 spindle Mfg. Lathe, 48"x20" Betts-Bridge, m. d. Miller, slab, 30x30x10" Ingersoll. Miller, No. 2 Cincinnati Universal. Miller, No. 2 AS Milwaukee, s. p. d. Millers, No. 2 Ohio, s. p. d. Miller, No. 2 1/2 Rockford, vert. att. Press, No. 39 Bliss horning, 2" str.	Press, No. 68N Bliss cam, geared. Press, No. 5 Toledo o. b. i., flywheel. Press, No. 6 Toledo o. b. i., geared. Planet, 36"x36"x8" Gray, 2 heads. Riveters, Hi Speed No. 2-A 3-A. Saws, metal band 4"x4" and 10"x10". Seamer, No. 2 Bliss, double. Shapers, 24 & 32" G & E. 230 v. d. c. Rolling Mills, 2 high, rolls 3x5". Thread Roller, No. 119 Bliss. Turret lathe, 24" Gisholt, 6 1/2" hole.
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FOR SALE BY

Brown Machinery Co., - - - - - 2333 N. 9th St., St. Louis, Mo.

Brake, press, L. & N. 10' 10 ga. Drills: 24", 26" and 32" No. 66-D Moline 4-spindle Hole Hog. Grinders: No. 6 Besly dbl. spindle; No. 220 Badger auto. disc; 12x30" Modern, plain, s. c. c. s.; No. 12 Brown & Sharpe, universal tool; No. 4 Cincinnati, 12x72 cylindrical. Hammer, 40 lb. Bradley, helve. Lathes, 30" Blaisdell, 26" Putnam, taper att., 18" & 16" Lodge & S.; 16" & 14" Monarch; 12" Seneca Falls; 15" Von Wyck; 7"x6" Lo-swing. Millers: No. 2 Hendey-Norton, univ.;	No. 3 1/2 Fox; No. 4 Hendey Lincoln; No. 3 Kempsmith, universal; No. 3 B. & S., vertical, s. p. d. Press, No. 7 Zeh & Hahneman, Nos. 1, 3, 4 Loshbough Jordan. Punch, Cleveland C 1/2 in 1/2"; Rock River Style L 1/2 in 1/2". Punch & shear, No. 9C Beloit, 1/2 in 1/2". Rolls, 2D Beloit, Initial 4 1/2"x5". Shaper, 24" Ohio. Shear, 50" 10 ga Excelsior gap. Shear, square, 10' L. & N. 14 ga. Threaders: 1" Geometric; National 1 1/2" double head.
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FOR SALE BY

McDonald Machinery Co., - - - - - 1535 N. Broadway, St. Louis, Mo.

Bolt mchs., Landis & Acme 1 1/2". Boring mill, Lucas & Bul. hor. & vert. Brake, D. & K. 6' 10 gauge, power. Drills, Cin-Bickford 3' & 3 1/2" radials. Gear hobber, G. & E. 24" & 60". Grinders, B. & S. No. 2 surf. & univ. Grinders, P. & W. 14" vert. surf., b. b. Keyseaters, M. & M. No. 2. Lathes, Hendey 20"x10", 14"x8" & 20"x12" grd. hd.; 50 others in stock. Milling machines, B. & S. No. 5, vert. Milling machines, Van Norman No. 2 duplex; B. & S. No. 1 1/2 Cinc. No. 1 1/2, Hendey No. 1-B, Kemp.	No. 3; Ohio No. 29 B. & S. No. 2-A single pulley drive, all universal; Kemp. No. 1, LeBlond No. 3-H.; B. & S. No. 3-B, s. p. d., all plain, Cincinnati 18" auto, and 12" Mfg. Pipe mchs., Curtis, B. & K. 12" m. d. Punch presses, Bliss No. 20; Bliss No. 21 1/2 Swaine Nos. 33 & 35 o. b. i. Screw machines, Foster No. 7. Shapers, G. & E. S. & M., Cin., Ohio, Steptoe, Queen City, 12", 16", 18", 20", 24" and 26". Square shears, Niag. 62" 18 ga., pwr. Turret lathes, W. & S. No. 2A univ.
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High Grade Machine Tools

Lathes

54"x24" H. S. & G. Grd. Hd. M. D.
42"x24" American Grd. Hd. late type.
24"x22" Bradford, Q. C., 3 S. C. D.
46"x16" H.S. & G. Grd. Hd., late type
30"x16" L. & S. Patent Grd. Hd.
24"x12" L. & S. Patent Grd. H.S.P.D.
30"x10" Lodge & Shipley, 3 S. C. D.
D. B. G. Q. C.

20"x8" Am. Grd. Hd., M. D., late t.
18"x8" Reed-Prentice Grd. Hd. Q. C.
20-30"x7" Monarch Helical G.H. Cap
16"x6" Lodge-Shipley Sel. Grd. Hd.

Grinders

Style "P" Yankee Drill Grinder.
Nos. 50, 55, 60, 65 and 70 Heads.
6"x18" Landis Plain, Self Contained.
No. 11 Brown & Sharpe Plain.
Walker Single Stroke Surface Grinder.
10"x52" Landis Plain, Self Con
Rivett Internal Grinder.
12" Pratt & Whitney Surface.
No. 2 Brown & Sharpe Surface.
Nos. 1½ Cincinnati Tool & Cutter.
No. 3 Brown & Sharpe Universal.

Gear Cutters

No. 4-48" Brown & Sharpe.
No. 12 Barber-Colman Hobber, dbl.
overarm, late type
No. 13 B. & S. Bevel and Spur.
18-H Gould & Eberhardt Hobber.
6", 11", 18" Gleason Gear Generators.

Bolt and Pipe Threaders

½" Landis Double-Spindle.
1½" Landis Sgt.-Sp., Grd. Hd. m. d.
1" Acme Class "A" Single-Spindle.
2" Landis Sgt.-Sp., lead screw attach.
2" Landis Double-Spindle.
6" Oster Pipe Machine, motor drive.

Boring Mills

24", 36" and 42" Bullard "New Era"
A. C. motor drive.
60" Niles Boring Mill, 2 heads.
84" Niles Vertical, motor drive.
No. 32 Giddings & Lewis Horiz.

Milling Machines

No. 2 Van Norman Duplex Miller.
No. 4 Cincinnati H. P. Pl., S. P. D.
No. 4-A Brown & Sharpe Universal.
No. 3-A Brown & Sharpe Universal.
Nos. 3; 5-B; 6 Becker Vertical.
No. 3 Cincinnati Vert. H. P., S.P.D.
Nos. 2 and 3 Cincinnati High Power
Plain. S. P. D. flange nose
5" Pratt & Whitney Automatic.

No. 2 Cincinnati Universal H. P.
flange nose: S. P. D.

18" Cincinnati Plain Mfg. Miller.
18" Cincinnati Automatic, M. D.
24" Cincinnati Automatic, M. D.
No. 33 Kempamith Automatic.
No. 3 Rockford Rigidmil; 98% new.
No. 7-H Becker Lincoln type.
No. 1 Knight Miller and Driller.
No. 3 & 3-E Lees-B. Thread Millers.

Planers

24"x24"x8" Gray Planer.
27"x27"x8" Woodward & Powell.
36"x36"x10" Gray, 2 heads.
26"x26"x12" Whitcomb-B., 2 heads.
36"x48"x12" Liberty Openside; two
rail heads. One side head.

Radial and Upright Drills

3" American Triple Purpose, S. P. D.
3½" American Triple Purpose, M. D.
No. 2 Colburn Mfg. H. D. 2-spindle.
3-sp. Avey High Speed Ball Bearing.
6-spindle Rockford 20" B. G. P. F.
No. 40 Natco Straight Line Multi.

Shapers

16", 20", 24" G. & E., mtr. ar. thru g. b.
16", 20" and 24" G. & E., cone drive.
20" Seiptoe, S. P. D.
24" Potter-Johnson M. D. thru gear box
24" Cinti. h. d. mtr. dr. thru gear box.

Miscellaneous

No. 2 Klemm Metal Band Saw.
No. 3-B LaPointe Broaching Mche.
25 ton Henry & Wright Dieing Mche.
50 ton Henry & Wright Dieing Mche.
80lb. Bradley Cushion Helve Hammer
Nos. 0 and 3 Baker Keyseaters.
No. 2 Mitts & Merrill Keyseater.
Nos. 1 & 2 Davis Keyseaters.
6 spindle ½" Acme Nut Tapper.
No. 5 Toledo O. B. Incl. Presses.
No. 43 Robinson Dbl. Crank Geared
Press.
300 Ton Niles Hydraulic Wheel Press,
78" between bars.
No. 92-B Toledo Grd. Dbl. Cr. Press.
No. 50 Toledo Arch Press, 10" stroke.
Wickes Punch & Shear, 48" throat,
1¼" thru 1¼".
High Spd. Riveters; 1½-B; & 3-AH.D.
Peerless Universal Shaping Saw.
No. 2 Garvin Vertical Tapper.
No. 4 W. & S. Univ. Turret Lathe.
100 K. W. Federal Butt Welder.
Shuster Wire Machines; 3/16" & ½".

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UPSETTING and FORGING MACHINES: Latest Type, 1st Ajax, with overhanging slides. Other Upsetting and Forging Machines; Ajax, Acme and National, $\frac{3}{4}$ " to 5".

BULLDOZERS: Williams White, Nos. 1 to 9.

HAMMERS: All Sizes in Bradley Cushioned Helve and Upright. Board and Steam Drop from 800 lb. to 5000 lb.

PUNCHES: Single and Double End, various capacities and throat depths, plain and architectural jaws.

QUADRUPLE COMBINATION ALL STEEL PUNCH, SHEAR, BAR, ANGLE, TEE CUTTER AND NOTCHER.

TESTING MACHINES: Riehle 100,000 lbs, 2-screw Tensile, M. D., Scleroscopes.

RYERSON HIGH SPEED FRICTION SAWS: No. 2 Hand Feed and No. 4 Hydraulic Feed with Rotary Attachment.

SHEARS: Bar, Guillotine, Alligator, Plate and Quickwork Rotary.

PRESS BRAKE, Loy & Nawrath 8'x $\frac{1}{4}$ ", M. D., Tie Rod Construction.

KARDONG CONCRETE BAR BENDER, M. D.

COULTER & MCKENZIE, 3rd Single Pass Eye Back Machine.

STRAIGHT SIDE TRIMMING PRESSES.

OPEN BACK INCLINABLE PRESSES: Plain and geared, from No. 0 Bench Type to No. 6.

DIE SINKERS: No. 2 and No. 3 Pratt & Whitney.

STAKE RIVETER: Kling Bros. No. 4-62", capacity $\frac{5}{8}$ " hot, $\frac{3}{8}$ " cold - Punch $\frac{5}{8}$ " thru $\frac{3}{8}$ ".

CAMPBELL NIBBLER: 6" Throat, capacity 3/16".

CHIP CRUSHER, No. 1 Williams.

CARBONIZING FURNACE: No. 85A American Gas.

PIPE THREADING MACHINES: Belt & M. D - 4" to 12".

MACHINE TOOLS: 24" G. & E. High Duty Shaper, arr. for M. D.; 24"x12' and 28"x12' Q. C. G. Lathes; 24x24x6" Planer; Nos. 1 $\frac{1}{2}$ and 2 Cincinnati Milling Machines; Oliver Die Filing Machine; LaPointe Keyseater; Drill Presses; Hack saws; miscellaneous equipment.

MISCELLANEOUS: Pease Electric Blueprinting Machine No. 10A; Forging and Tapering Rolls; Tumbling Tumbling Barrels of various makes and sizes; Forging Furnaces; Air Compressors; Blowers; Hydraulic Presses; Riveting Machines; Wire Straighteners from 3/16" to $\frac{5}{8}$ "; complete Parkerizing Unit.

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COLD HEADERS: Waterbury and Manville, single and double stroke, open and solid die, $\frac{1}{8}$ " to $\frac{5}{8}$ ".

1st NATIONAL SEMI-HOT AUTOMATIC FEED HEADER.

HOT HEADERS: Stop and Continuous Motion, all sizes.

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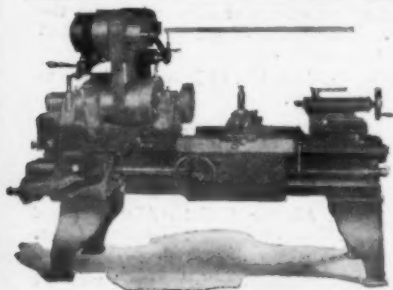


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